Meeting Minute (by Chandra Bhat)
Subject: Booster Physics/Operations Group Telework Report-20200806
Date/Time: 20200806, 9:00 am

Attendee: D.E. Johnson, J. Johnston, V. Kapin, C. Bhat, C.Y. Tan

Speakers: C. Bhat, D.E. Johnson, J. Johnstone, V. Kapin

Report: Each one of the group members reported on their work during COVID-19 Telework period 7/2-8/6, 2020.

C. Bhat: (CB-Report20200806.pptx)
Majority of the work carried out during this period were

1. DCCT/CHG0 detector specifications with CYTan & Instrumentation Group; provided the bunch structure around injection (longest) and transition crossing (narrowest). This effort involved sorting some of the Booster beam data and revisiting ESME simulations as needed.
2. longitudinal beam dynamics simulations for PIP (900kW) and PIP2 scenarios. No space charge no emittance growth. Space charge at PIP-II intensity ok up to transition. Emittance growth at transition is unacceptable.
3. Previous year's beam data analyses continued
4. literature survey/study, documentation

Chandra also presented plans for next month.

D. Johnson: (DEJ activities july 2020-20200806.pptx)
Dave's work was focused on

1. Booster/PIP-II Activities: injection absorber, collimation, Longitudinal damper, CHG0 cost estimate, Booster magnet test girder at E4R and
2. PIP-II injection simulations: Working with Francois Ostiguy on pyOrbit. According to DEJ Eric Stern is not using proper optics for injection simulations.
3. BTL (beam line between PIP2 linac and Booster) and BAL (beamline to PIP2 beam absorber, downstream of PIP2 linac) but off BTL
4. He is also spending time on i) Laser notcher modernization, which involves new cavity and reducing the mirror separation to have more number of bounces- better stripping efficiency, ii) A0 laser lab modernization,

Dave also presented his future plans for next month.

J. Johnstone: (JJ-Effort-Summer of 2020-20200806.pdf
John's work was focused on

1. Most of the time is devoted to work with summer student, many activities including design of a imaginary gammaT RCS

2. Angular distribution of H species from foil scattering – work in collaboration with DEJ. John showed a few slides on multi-step atomic processes he may have to consider in the theory.

Coming month, he would continue theoretical work on H0 angular distribution (help DEJ, 800 MeV injection region). Try to start tracking using MAD-X and MARS (both are non-trivial)
Chandra: What % of total loss is from Ho?
DEJ: Ho contributes about 17watt which is not negligible. Out of this about 1.5watt is from Ho with excited states.

V. Kapin: (20200806_Kapin_telework_summary_03Jul-05Aug2020.pptx.pdf)
Valery worked on

1. MAX-X simulations for new D-magnet design. He also presented a talk at the PIP2-Taskforce meeting on July 30, 2020.
2. New 2SC. Discussions with DEJ, V. Sidorov, Salah and Rick Tesarek about design, penetrations etc.
3. Learn MAD-X for closed orbit simulations for Booster in particular around new collimator, extraction and IPM
4. Continue progress on IPM ACL script
5. Discussions with Kiyomi about needed LINAC simulations for new collimators upstream of RFQ.

In the coming month Valery will be working on all of the above.

Discussions:

CYTan: Tan needs information from Valery on the types and number of cables for the 2SC asap.

Chandra: Mentioned about fewer penetration with a switch box in the Booster tunnel

CYTan: Suggested that once we know the details on cables, we will start planning about the penetrations and switch box.